LOGISTICS

SUBSISTENCE

INSPECTION OF COMPOSITE OPERATIONAL RATIONS

APRIL 1998

DEFENSE SUPPLY CENTER PHILADELPHIA
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FORWARD

(Supplementation is permitted)

This Handbook is an aid to inspectors of composite operational rations. This basic document and associated Appendices provide guidelines for sampling, inspecting, classifying defects, and determining lot disposition for the various types of composite operational rations.

This Handbook has undergone extensive changes, including the title, and should be reviewed in its entirety.

This Handbook, to include Appendix A, will be used when inspecting DLA and Military owned MREs. Concurrence of the Military Services is contained in the enclosed letters. Users of this publication are encouraged to submit comments and recommended changes to improve the publication, through channels, to DSCP, Attn: DSCP-HR.

Changes will be coordinated with Military Services and implemented as appropriate.

FOR THE COMMANDER

B. ARINSBERG
Chief, Base Supply and
Administrative Support Div
Directorate of Support

DISTRIBUTION
Special

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F. Appendix F - Inspection of Food Packet Survival, General Purpose (Not published to date).

G. Appendix G - Inspection of Unitized Group Ration (Not published to date).

H. Appendix H - Inspection of the Humanitarian Daily Ration (Not published to date).

I. REFERENCES.

A. DoD 4140.27-M, Shelf Life Item Management Manual.

B. DLAM 4145.2, Joint Service Manual (JSM) For Storage and Materials Handling, Section IV, Subsistence.

C. AR 30-7/DLAR 4145.36, Food Program, Operational Rations.

D. AR 40-656/NAVSUPINST 4355.10/MCO 10110.45, Veterinary Surveillance Inspection of Subsistence.

E. AR 40-657/NAVSUPINST 4355.4 /MCO P10110.31, Veterinary/Medical Food Inspection.

F. AR 40-920, Veterinary Laboratory Service.

G. AFI 48-116, Food Safety Program.

H. DLAM 4155.2, Quality Assurance Program Manual for Defense Supply Centers and Defense Industrial Plant Equipment Centers.

I. DLAM 4140.2, Supply Operations Manual.

J. DLAR 4155.37, Appendix S, Materiel Quality Control Storage Standards.

K. TB MED 263, Veterinary Service, Identification of Inspected Foods.

L. DLAI 4145.31, Integrated Stored Product Pest Management.

M. MIL-STD 904A, Guidelines for Detection Evaluation and Prevention of Pest Infestation of Subsistence.

N. Armed Forces Pest Management Board, Technical Information Memorandum (TIM-38), Protecting Meals, Ready-To-Eat Rations (MREs) During Storage.

O. DSCP Manual 4155.6, Subsection 218.2, Entomological Laboratory Infestation Services.

lI. **PURPOSE and SCOPE.** This Handbook provides uniform guidance to all DoD personnel responsible for the inspection and technical management of operational rations under the control of the Military Services, **DLA/DSCP,** and/or civilian organizations. This Handbook pertains to DLA owned and Service owned rations.

III. POLICY.

A. Operational rations in the custody of DLA or the Military Services will be subjected to continual inspections and systemic quality evaluations from time of receipt to time of use or consumption. When quality deficiencies are noted that change the Condition Code of operational rations, prompt action will be initiated to identify affected stocks, possible cause of the deterioration, and to provide disposition recommendations to the accountable officer/agency.

B. Storage facilities for operational rations will be selected, maintained and inspected in accordance with DLA and/or Service regulations as appropriate. Storage facilities will receive the same level of attention as the operational rations themselves during inspection.

C. Rations showing physical signs of contamination (e.g., foreign odors, oily cases, etc.) or suspected to have been exposed to chemical, biological, and/or radioactive contaminants will be inspected in accordance with directives of the controlling Service/agency specific to these types of situations.

IV. RESPONSIBILITIES.

A. The Assembled Rations Branch, Operational Rations Business Unit, Defense Supply Center Philadelphia (DSCP-HR) is responsible for developing, maintaining, and coordinating this Handbook and any proposed changes with inspection and food service activities of the Military Services. In addition, Assembled Rations Branch is responsible for providing contractual inspection guidance when requested by an inspection activity for warranty inspection purposes.

B. Inspection services shall be provided by either the USAF Public Health Services or the U.S. Army Veterinary Service as appropriate.

C. Storage and warehousing services necessary to provide adequate labor and materials handling to conduct sampling and recouping of operational rations shall be provided by the activity having custodial management of the rations.

D. Inventory management shall be provided by Assembled Rations Branch, Operational Rations Business Unit, Defense Supply Center Philadelphia; or the Ordering Officer; or the Accountable Officer having material management responsibility for the rations.

V. DEFINITIONS.

A. Action Number. A number which, when reached or exceeded, indicates additional inspection is necessary or indicates a component is defective beyond acceptable limits and the menu(s) that contains it must be evaluated for serviceability.

B. AVI. Army Veterinary Food Inspector

C. Contractor's Lot. The collection (grouping) of units of a specific product limited, as much as possible, to units of identical characteristics as established by:

1. Stock number.
2. Package size.
3. Contractor.
4. Contract number.

5. Date of pack.

6. Type of pack

7. Quality and storage history.

D. Component. An item in a composite ration. Components have different levels of importance/significance to the overall ration primarily based on their caloric value.

E. Composite Ration. An operational ration composed of several different components that undergo different rates of deterioration over time and temperature variations.

F. Date of Pack (DoP). Date on which the product was packaged in the unit or primary container, regardless of packing or shipping. DoP for operational rations is usually the date when components are assembled and packed into shipping containers.

G. Defect. An imperfection in component material, workmanship, quality or condition which fails to meet established standards. Defects are normally classified according to their seriousness (i.e., Major A, Major B, or Minor).

H. Defective. A component with one or more defects.

I. Deterioration. A process of degradative changes occurring in a food item which may affect the product's wholesomeness; result in a reduction of its quality, and/or alter its serviceability.

J. Direct Vendor Deliver (DVD). Delivery of rations directly from the ration assembler to the military installation.

K. Grand Lots:

1. An administrative procedure where two or more lots from one assembly contractor are grouped into one grand lot, provided the characteristics of homogeneity outlined below are satisfied. Products normally are not moved for inspection purposes. However, the samples are selected proportionally from and representative of each contractor's lot.

2. To qualify for grand lotting, contractor's lots must be identical as to: a. Stock number. b. Date of pack (month and year) at DLA Depots and storage facilities, year of pack for service owned rations at military installations. c. Condition Code.

3. Individual Appendices may contain supplemental guidance for grand lotting,.

L. Grand Lotting. Collecting or grouping two or more lots presumed equal in quality in order to decrease the cost of surveillance inspections by reducing the number of samples.

M. Inspection Level. A factor that determines the relationship between the lot or batch size and the sample size.

N. Inspection Test Date (ITD). A date occurring a specified number of months after the date of pack. The ITD is related to, but less than, the estimated shelf life.

O. Lot (Inspection Lot). A collection of units of a product from which a sample is to be drawn and inspected.

P. Lot Size. The number of units of a product in a lot.

Q. Meal/Menu. A specific quantity of nutritionally balanced food provided one person during a scheduled serving period. A combination of three meals/menus (breakfast, lunch, dinner) constitutes a ration.

R. Operational Ration. A ration composed of semiperishable foods designed for use in time of war or other emergencies.

S. Ration. An allowance of food for the subsistence of one person for one day.

T. Semiperishable (Shelf Stable) Foods. Foods that do not require refrigeration during transportation or storage.

U. Serviceability. The fitness of a subsistence item for its intended purpose; generally expressed in terms of Condition Codes. Serviceability determinations may be based on-many factors. For composite operational rations, three factors are essential: estimated remaining shelf life; current quality and condition of the item and its components, and packaging and packing integrity.

V. Serviceability Standards. Documents which contain instructions for inspection, testing, restoration and procedures for determining serviceability.

W. Storage Life (Shelf Life). The total elapsed time from the **DoP to the date** of issue for immediate consumption. The appropriate storage life given in various serviceability standards is the best estimate of expected life. Specific lots of subsistence may be expected to show signs of quality loss within plus or minus 20 percent of the time listed.

X. Sublot. Identifiable collection of units of a product contained within a lot.

Y. Unfit for Human Consumption. Rations that present a clear potential or actual health hazard if consumed.

Z. Unfit for Intended Use. An item which can no longer be utilized as originally designed because of deterioration or other restricting factors.

AA. Unit. A single grouping of a ration for sampling purposes (i.e., menu accessory pack, etc.).

BB. VETCOM. U.S. Army Veterinary Command

VI. INSPECTION FACILITIES AND EQUIPMENT.

A. Inspection facilities are normally required at fixed storage locations.

1. Location. A fully enclosed room convenient to the storage facility or location of the rations being inspected. Entrance shall be restricted to those involved in the inspection process. The area should be consistent with the extent of the operation, be heated/air conditioned, and be accessible by forklift.

2. Ventilation. Well ventilated and free from dust and odors of all kinds.

3. Lighting. The intensity of light needed for critical appearance examinations should be at least 100- foot candles. Florescent lighting shall be restricted to the special daylight type.

4. Furnishings.

a. Inspection tables and/or counters should be approximately 36 inches high and 30-36 inches wide. The tops should be impervious (e.g., stainless steel. enameled steel, or pressure laminated plastic).

b. The sink (preferably three-compartment stainless steel) must have hot and cold running water, large enough to accommodate the largest equipment used, and must have at least a 1/2 horse power disposal system.

c. Storage cabinets or work counter shelves used for storing equipment and supplies should be provided with hinged doors and/or sliding drawers.

5. Facilities Maintenance.

a. Major repairs and upgrades will be the responsibility of the organization requiring the inspection services.

b. Daily clean up will be the responsibility of the inspection activity.

c. Other requirements will be addressed in agreements made at the local level and in accordance with organizational policy.

6. Inspection Equipment. Items of equipment needed for the inspection of each type of ration are listed in the pertinent Appendix.

V1I. SERVICEABILITY.

A. Serviceability determinations have traditionally been made for all products based on estimated remaining shelf life; however, that approach for composite operational rations is not practicable as the sole means of determining serviceability. Operational rations are normally assembled into composite menus (e.g., MREs) or modules (e.g., UGRs) that contain numerous non-homogeneous products. The components are quite different; packaged at different times (often several months apart), and ten (to deteriorate at significantly different rates. Because the relative importance of each component to the overall composite ration is so variable, Condition coding based on shelf life alone is not practical nor indicative of the actual serviceability of the rations.

B. In accordance with this Handbook, Condition Codes and estimated remaining shelf life for composite rations will be based on:

1. The condition of each component evaluated individually.

2. The importance of each component relative to the ration in which it is contained.

3. Subparagraphs VII.B.1. and VII.B.2. above and the overall effect that the defective components will have on the menu(s), case(s), or tray pack modules (s).

C. Specific Condition Code criteria for each type of composite ration is contained in the Appendices.

D. Condition Codes will be determined based on the general guidance provided above and the specific criteria in the appropriate Appendix.

VIII. TYPES AND SCHEDULING OF INSPECTIONS.

A. Types of Inspection. The following types of inspections will normally be performed on operational rations:

1. Receipt Inspection. A detailed inspection upon receipt from either DLA/DSCP stocks or from stocks of a sister Service activity. Rations of unknown storage history or from unknown sources will be inspected using the special inspection sampling criteria cited in the appropriate Appendix to this Handbook.

2. In-storage (Cyclic) Inspection. These are inspections performed on a routine cyclic schedule while the rations are in storage.

3. Warranty Inspection. A detailed inspection conducted within the contractual warranty period in accordance with acquisition contract criteria. The quality assurance provisions and criteria of this Handbook are not to be interpreted as contractual. Normally, before a contractually binding warranty inspection can be performed, the inspection activity must contact the acquisition activity (i.e., DSCP) to obtain the warranty inspection criteria. The acquisition activity will provide lotting procedures, guidance on sampling plans, tables of inspection, and other pertinent information needed by the inspection activity. Inspectors will **contact DSCP-HR** to obtain the aforementioned guidance and inform them of their intention to perform a warranty level inspection. For Air Force stocks, inspectors will contact the Air Force Services Agency (HQ AFSVA/SVOHT). AFSVA will coordinate requests with DSCP and the inspection activity.

4. Inspection Prior to Issue, Sale or Shipment. When normally scheduled inspections have been performed, these are usually superficial inspections performed to detect obvious condition defects and/or damages that have occurred since the last scheduled cyclic inspection (e.g., mishandling, water damage, temperature abuse). If the normally scheduled inspections have not been performed, a more detailed inspection should be conducted at time of issue, sale or shipment.

B. Scheduling of Inspections.

1. Priority of Inspections. The inspection of operational rations shall be continuous from time of receipt through warranty (if applicable), during storage (cyclics), at time of issue or sale and while stored as unit basic loads. Normally, rations that have reached their recommended storage life, those having the oldest dates of pack, items placed in a priority issue status or those in Condition Codes B or C and rations scheduled for warranty inspection shall have inspection priority. Exceptions may be made when extenuating circumstances exist.

2. Receipt Inspections. All rations will be inspected at time of receipt or as soon as possible thereafter. If a complete inspection cannot be performed at time of receipt, as a minimum, an examination will be made for transportation damage. Additional information on receipt inspections can be found in the applicable appendix to this handbook.

3. Surveillance Inspections. These inspections will normally be performed:

a. When rations are received from another installation of the same Military service.

b. As a general rule, DLA owned rations which contain retort pouches (thermostabilized food, with a water activity greater than 0.85, in flexible pouches) which are not kept in cold storage/war reserve location, should be inspected at six month intervals. Service-owned rations should be inspected annually, at a minimum. Inspection frequency should be maintained so long as the rations inspection results do not indicate significant degradation, and the rations have not exceeded their estimated serviceable storage life based on the criteria in DoD 4140. 27-M, and the applicable appendix. Rations with a low water activity, such as survival rations need only be inspected annually (DLA-owned or service owned) so long as the rations inspection results do not indicate significant degradation, and the rations have not exceeded their estimated serviceable storage life based on the criteria in DoD 4140. 27-M, and the applicable appendix. When ration quality is good (based on inspection results), yet the rations have exceeded their estimated serviceable shelf life, please consult **with DSCP-HR** (if the rations are DLA owned or the Accountable Officer (if the rations are service-owned) to determine the appropriate inspection frequency).

c. At three month intervals, once the rations have been classified as Condition Code B.

d. When rations are placed in Condition Code C, the accountable officer and storage facility supervisor must be notified in writing. Thereafter, these rations do not require cyclic inspection until issue, sale, or donation. Inspection of Condition Code C rations at issue, sale, or donation should include destructive open package inspection. Inspectors must coordinate with storage facility personnel to ensure that adequate time and warehouse support are available for these inspections.

e. At a frequency requested by the accountable officer or deemed necessary by the inspection activity to ensure the rations are fit for the purpose intended.

4. Prior to Issue, Sale or Shipment Inspections. These inspections are performed at time of issue, sale or shipment, or within the past 30 days, provided storage handling conditions were otherwise acceptable.

5. Warranty Inspections. A warranty inspection is performed at the first DoD destination (excluding commercial contract warehouses) to receive the rations from the assembly contractor. Ideally, warranty inspections will be conducted between five and six months of the date of receipt at destination. However, if defects are found during any inspection within six months of receipt, a warranty inspection will be performed. When the inspection activity intends to conduct a warranty inspection of operational rations, the Operational Rations Business Unit (DSCP-HR) must be contacted for inspection guidance. For Air Force stocks, contact HQ AFSVA/SVOHT for instructions and inspection guidance. HQ AFSVA/SVHOT will coordinate with DSCP for contractual criteria providing contractual guidance sufficient for conducting warranty inspections is beyond the purpose and scope of this Handbook. Warranty inspections should not be performed on tray pack modules assembled at defense depots.

6. Special Inspections. A special inspection will be performed when determined necessary based on routine inspection findings, customer complaints, requests from DSCP or the Military Services, or whenever cogent reasons exist for such an action. For Air Force stocks. HQ AFSVA/SVOHT will coordinate with DSCP and the inspection activity when special inspections are requested by DSCP.

IX. METHODS OF INSPECTION.

General. The specific methods of inspection for each type of composite ration and its components are:

1. Nondestructive Closed Package Inspection (NCPI). NCPI is the examination of the product's packaging, packing and/or unitization.

2. Destructive Closed Package Inspection (DCPI). DCPI is the examination of a product in a defective package to ascertain the effect the packaging defect has on the food itself.

3. Destructive Open Package Inspection (DOPI). DOPI is the examination of a food product taken from packages which appear normal or those exhibiting only minor packaging defects.

X. CLASSIFICATION OF DEFECTS.

A. General. The following classes of defects will be used when inspecting operational rations' IAW this Handbook.

1. Major A Defect. These defects are equivalent to criticals. This classification should be used for defects that are likely to cause hazardous or unsafe conditions for individuals using, maintaining or dependent upon the product. The words `are likely to' are important. They do not mean 'could possibly' since it is always possible to develop grand scenarios that transform trivial happenings into major catastrophes. Therefore, the use of this classification requires experience, prudence and sound judgment.

2. Major B Defect. These are defects that are not hazardous or unsafe. However, they may restrict the use of the product or make its consumption unlikely under the conditions for which the rations were originally designed. Examples: Extreme color (darkening). odor (rancidity), or flavor (bitterness) changes in primary components of a ration that make them unlikely to be consumed under normal field conditions where resupply or alternative feeding strategies are available. However, under more restrictive conditions the components could be consumed without concern that illness could be produced.

3. Minor Defect. These are defects that make the product less useful than it should be, but not seriously so. Minor defects usually do not affect serviceability. However, their identification is important since they often reveal early signs of deterioration and can be detected before the item reaches a condition that makes its consumption unlikely under conditions of normal use. Their early detection may lead to a predictive intervention by the accountable officer to ensure consumption before the component or menu loses its serviceability.

B. Assigning Defect Classifications.. Inspection personnel will classify defects utilizing the Tables of Examination provided in the Appendices to this Handbook. Since it is impossible to anticipate every possible defect that may be encountered, inspectors may have to classify a defect they observe using the criteria given above. When a defect is reported that is not found in the appropriate table of defects, the inspector should discuss the defect with his inspection supervisor and clearly describe the nature of the defect in the inspection report.

C. Specific Defect Codes. Specific defect codes, which are essentially extensions of the defects in the Table of Examination, are contained in the Appendices to assist in gathering more data concerning defective components. Their use should produce more accurate descriptions of product deterioration, help standardize inspection findings and prove invaluable in developing inspection recommendations.

D. Elevating Defects. Any defect noted during an inspection may be elevated into the next higher classification if, in the inspector's judgment, the condition will progress to the next highest level prior to issue, sale, shipment or the next scheduled cyclic inspection. Elevating defects should be done based on experience and with restraint.

XI. MARKING AND IDENTIFICATION OF INSPECTED SUPPLIES. Ration samples that are inspected and returned to storage will be identified as inspection samples in accordance with the procedures specified in TB MED 263 (Veterinary Service, Identification of Inspected Foods) or other appropriate means.

XII. LABORATORY ANALYSIS.

A. When doubt exists as to the condition of a lot of operational rations and the inspection activity determines there is a need for a special examination and/or test, samples will be submitted to the DOD Veterinary Laboratory. Utilization of laboratories in the determination of serviceability is encouraged whenever it is deemed necessary by the inspection activity.

B. Laboratory samples will normally consist of at least three abnormal appearing and three normal appearing units. If only abnormal or normal appearing units are available, six will be sent. If extenuating circumstances exist or if there is a doubt as to the capability of the laboratory or the quantity of samples needed, the inspection activity will consult with personnel of the supporting laboratory prior to submitting samples for testing.

C. MEDCOM Form 676 or DD Form 1222, Request For and Results of Tests, as appropriate, will be submitted with the samples. The Remarks section will contain all essential information including known history of the product, description of the defective condition, reason for testing or special examination, and other pertinent information that might be of assistance to laboratory personnel in their investigation. Contact between the inspection activity and laboratory personnel prior to sample submission is always encouraged especially when a unique situation arises.

XIII. PEST INFESTATION AND LABORATORY SUPPORT.

A. Infestation, damage, or contamination by insect and/or rodent pests encountered during any operational rations inspection procedure will be immediately reported to the Product Quality Office (DSCP-HROS). DSN: 444-3876 or 7533 or Commercial (215) 737-3876. For Air Force stocks, this information will be reported to AFSVA/SVOHT, who will in turn report it to DSCP-HROS. In the came of insect infestation, the initial notification will be followed up by submission of a DD Form 1222, Request for Results of Tests, filled out and submitted-in accordance with DPSC Manual 4155.6, Subsection 218.2. The information collected from DLA and Service sources will be used to complete an operational rations infestation quality history.

B. When infestation or pest contamination is found, a determination must be made as to the source of the problem. A facility inspection should be accomplished by inspection personnel, the storage facility manager, and the responsible pest control activity. Appropriate pest control actions should be taken, when necessary, using the guidance contained in DLAI 4145.31 or applicable Service directives. If the current storage location ix not the suspected source of infestation, the previous storage facility will be immediately contacted and similar investigative procedures initiated. If the operational rations in question were received infested from a supplier or DLA storage site, contact DSCP-HROS immediately for follow-up action and appropriate recommendations.

C. Disposition recommendations for infested stocks will be based on MIL-STD-904A or applicable Service directives and, when applicable, laboratory identification results. Disposition recommendations for Air Force stocks may be made IAW local directives in lieu of MIL-STD-904A. Final decisions on the disposition of inspected rations should be made jointly by the inspection activity and the owner of the rations. In cases where rations are placed on medical hold, final disposition must be coordinated by the owner of the rations with the inspection activity or local medical authority.

XIV. QUALITY HISTORY RECORDS (QHR).

A. QHRs will be kept at the local level for all lots received and will be maintained in accordance with the appropriate Military Service regulation. QHRs will include all examination and test reports received with the shipment and those generated after receipt, including prior to shipment, sale or issue.

B. Hard copies of the quality history files or individual inspection reports will be submitted to DSCP-HR when requested or as described below:

1. Rations have deteriorated prematurely and unexpectedly without verifiable cause.

2. When rations have been condemned in quantities exceeding ten cases or five modules without verifiable cause.

3. When inspection findings reveal unusual trends or unique defects not addressed in this Handbook, or the applicable appendix. Electronic transmissions of inspection reports are acceptable to DSCP, provided it is within a format that allows DSCP to read and print the reports. For Air Force stocks, quality history files will be requested through HQ AFSVA/SVOHT. QHRs for Army owned rations, or rations owned by other services, which are inspected by U.S. Army Veterinary Services will be requested through U.S. Army VETCOM. Further distribution to Military Service activities will be at the discretion of the Military Services.

C. Specific distributions of inspection reports may be addressed in the applicable appendix.

XV. **MONOGRAPHS.**

A. A Monograph is an information and instruction sheet that provides the inspection activity with a description of the component, including normal characteristics and signs of deterioration, as well as special instructions on how to examine the item. Monographs have been developed for most components, packaging and packing materials, and for the composite ration itself.

B. The content of a Monograph will normally include: a description of the item, the desired characteristics of the item, signs of deterioration most likely to occur, specific examination and testing instructions and special notes about the product or its packaging.

C. Monographs for operational rations will be provided with each Appendix. They will be updated when new items are procured and/or when new and significant information becomes available. Comments or suggestions to improve Monographs are encouraged and should be addressed to the proponent of this Handbook.